

STATE OF MAINE  
PUBLIC UTILITIES COMMISSION

Docket No. 2002-162

September 11, 2003

MAINE PUBLIC UTILITIES COMMISSION  
Procedures for Conservation Program  
Planning

COMMISSION STAFF  
REPORT ON THE  
CONSERVATION PROGRAM  
PLAN

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NOTE: Interested Persons may comment or object to the analysis or recommendations made by the Commission's Energy Efficiency Team in this Report. Such comments or objections must be in writing and filed with the Administrative Director of the Commission no later than September 25, 2003. It is expected that the Commission will consider the analysis and recommendations contained in this Report at their Deliberative Session on October 1, 2003.

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## **I. EXECUTIVE SUMMARY**

Attached to this report is the Staff's recommendation for a Maine Energy Efficiency Program Plan. The Plan addresses the goals, objectives, and strategies established by the Commission and it reflects the comments and suggestions of multiple parties who have taken the time to comment on full-scale programs. This plan builds and improves on individual interim programs we already have experience operating, can manage with our existing resources, and can afford with our projected budgets. The portfolio of individual programs will provide every Maine resident with an opportunity to participate in an energy efficiency program and honors the statutory requirement to target 40% of the total program resources between low income and small business customers.

We project that the Maine Energy Efficiency Program's total benefits will exceed total costs by a margin of 3.6 to 1.

## **II. BACKGROUND**

Public Law 2001, ch. 624 (The Conservation Act or the Act),<sup>1</sup> enacted during the second session of the 120th Legislature, establishes the terms that govern an energy conservation program for Maine. Section 4 of the Act, codified at 35-A M.R.S.A. § 3211-A, directs the Maine Public Utilities Commission (Commission) to “develop and, to the extent of a available funds, implement conservation programs...” The Act contains a wide range of goals and criteria that govern the selection of conservation programs and requires the Commission to establish definitions, procedures, and criteria before implementing programs.

On April 8, 2002 the Commission issued an Order Extending Utility Energy Efficiency Programs, wherein the Commission directed T&D utilities to continue operating their existing energy conservation programs in a manner that is consistent with recent program operations until such time as they are directed to do otherwise by the Commission. This was clarified in an Advisory Opinion Regarding CMP's Existing Conservation Programs, issued on July 8, 2002.

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<sup>1</sup> The Conservation Act, and the Commission Orders referenced here may be found on the Electric Conservation Activities section of the Commission's web page (<http://www.state.me.us/mpuc>).

On June 13, 2002, the Commission issued an Order Establishing Interim Conservation Programs. By this Order, the Commission decided to implement a number of interim conservation programs pursuant to Section 7 of ch. 624. To avoid delay in implementing conservation programs, interim programs do not have to satisfy the requirements of 35-A § 3211-A. Interim programs must terminate no later than December 31, 2003. We have since developed and implemented interim programs. To the extent possible, these programs have all been designed to satisfy the requirements of 35-A § 3211-A. The Order also stated that the Commission would consider which of the utility programs to continue funding through the Conservation Program Fund, after the Tier-1, Tier-2, and Tier-3 interim programs were implemented.

On July 23, 2002, the Commission issued an Order Establishing Procedure and Schedule for Conservation Programs Implemented Pursuant to P.L. 2001, ch. 624. In the Order the Commission stated that it would decide funding and economic potential issues, and then decide upon a program plan after concluding the rulemaking to define cost effectiveness. The Commission directed any interested persons to file economic potential studies by September 10, 2002.<sup>2</sup> By Procedural Order on August 22, the Commission scheduled a technical conference on October 2 to discuss all economic potential studies submitted by interested persons.

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<sup>2</sup> The Public Advocate subsequently requested, and was granted, filing extensions to September 26, 2002. No other party filed a technical potential study.

On August 20, 2002, the Commission opened a rulemaking to revise Chapter 380 of its rules and to define the terms “low income consumers,” and “small business consumers” for conservation program purposes, as required by 35-A M.R.S.A. § 3211-A (1)(B)(1) and (2). The revision also sought to establish the cost effectiveness criteria that will govern the Commission’s selection of conservation programs, as required by 35-A M.R.S.A. § 3211-A (2). We received comments and conducted a public hearing in this rule making proceeding. A final Rule was issued on Nov. 6, 2002 and made effective shortly thereafter.

On September 24, 2002, the Commission issued an Order Establishing Goals, Objectives, and Strategies for Conservation Programs Implemented Pursuant to P.L. 2001, ch. 624. In that Order, the Commission established goals, objectives, and strategies as required by 35-A M.R.S.A. (2). These goals, objectives, and strategies will govern the selection of the on-going plan that will now be called the Maine Energy Efficiency Program Plan.

On September 26, 2002, the Commission issued a request for input on the design of energy efficiency programs to solicit comments from any interested parties on programs that should be included in the portfolio of ongoing programs implemented pursuant to P.L. 2001, ch. 624. The Commission requested that parties proposing specific programs for consideration include summaries of the programs that discuss the target market, goals and objectives, market barriers to overcome, measurable outcomes, and estimated program costs. The

Commission also requested that parties include cost effectiveness estimates of proposed programs along with their effectiveness in meeting the overall goals, objectives, and strategies established in its September 24, 2002 Order. In addition parties were asked for references to similar programs in operation elsewhere. The Commission requested written comments by October 21, 2002, and held a technical conference on November 5, 2002.

The Commission received comments from twenty-nine parties in writing or orally at the technical conference.

By order in this Docket on April 4, 2003, we decided to assess all T&D utilities in the state at the statutory maximum rate, 1.5 mils/kWh, for funding conservation programs. *Order on Conservation Program Funding*, Docket No. 2002-162 (April 4, 2003).<sup>3</sup> We found that the potential for energy efficiency is relatively proportional across T&D service territories in Maine. We also found that the achievable potential energy savings is several times greater than the savings that could be achieved at the maximum funding level, and inferred a legislative intent in such an instance to fund at the maximum level.

### III. COMMENTS OF THE PARTIES

American Lung Association: Mr. Norman Anderson of the Maine Chapter of the American Lung Association wrote in support of proposals submitted by

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<sup>3</sup> For those utilities not yet assessed at the statutory maximum (all but CMP), we decided to phase-in the increased assessment, beginning at 0.6 mils/kWh for the first year, and increasing by 0.2 mils/kWh per year until the statutory maximum is reached.

Turner Building Science and the SAMPLE<sup>2</sup> Project. The Association focuses on a comprehensive view of energy efficiency that integrates a building systems perspective and objectives that optimize the potential for combining building operations and education into the same program.

American Institute of Architects (AIA): AIA commented in support of the Maine Solar Energy Association.

ART TEC: ART TEC, an independent engineering company, recommends offering incentives for the purchase of solar equipment.

Bangor Hydro-Electric Company (BHE): BHE comments that it does not wish to continue the implementation of its own efficiency programs. BHE does recommend that a water heater wrap program be retained for residential customers because 40% of BHE customers have electric hot water heaters. BHE also agrees with the Public Advocate's consultants that there is large efficiency potential in the commercial lighting industry.

Central Maine Power Company (CMP): CMP requests that it be allowed to continue its residential water heater wrap and commercial energy efficiency incentive programs. CMP comments that the programs are cost effective and will meet a number of the Commission's stated objectives for efficiency programs.

Eastern Maine Electric Cooperative (EMEC): EMEC provides hot water heater insulation jackets to its customers. It also uses energy monitoring devices to help consumers understand how many kWh their customers are using. EMEC regularly provides energy conservation material to customers through newsletters. EMEC would like to continue the aforementioned activities.

Energy Solutions Partners (ESP): ESP proposes an LED Exit Sign Retrofit program similar to the program offered in CMP and MPS service territories in 2001. ESP believes there is a market for another 15,000 LED sign retrofits in federal, state, and municipal facilities. It proposes to market, purchase, and deliver 5,000 LED retrofit kits per year for three years at an expected cost of \$125,000 per year. Based on energy savings alone, ESP projects that program benefit would exceed cost by a margin of 2 to 1. By including maintenance savings, program benefits would exceed costs by more than a 6 to 1 margin.

EnSave Energy Performance Inc. (EnSave): EnSave specializes in the delivery of audits to the agricultural sector. As an inducement to customers and a means of acquiring quantifiable energy savings, EnSave proposes to give away engine block heater timers to up to 1,000 farmers per year at a cost of \$554,025. It projects the program will result in 2,265,000 kWh per year energy savings. EnSave has delivered similar programs in Wisconsin and Vermont.

Environment Northeast: Environment Northeast recommends that the Commission adopt minimum energy efficiency standards as recommended in the report submitted by Northeast Energy Efficiency Partnerships (NEEP)<sup>4</sup>. Environment Northeast specifically recommends that the Commission incorporate efficiency standards in its individual program offerings, within a stand-alone program for efficient products, and in the information it provides to the legislature.

Houlton Water Company (HWC): HWC has offered a number of efficiency services to its customers over the years but is ambivalent about continuing them. HWC's plan is to discontinue the programs unless directed to do otherwise by the Commission.

Hydrogen Energy Center (HEC): HEC filed comments in support of incentives for solar energy systems.

James Lippke: Mr. Lippke filed comments in support of incentives for solar energy systems and commented that the initial cost of energy efficient products such as compact fluorescent light bulbs was a barrier to their adoption.

Kennebunk Light & Power District (KLPD): KLPD requests that it be allowed to continue a number of efficiency and demand response programs. KLPD offers a low/no cost residential lighting program, load shedding devices for

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<sup>4</sup> Energy Efficiency Standards: A Low-Cost High-Leverage Policy for Northeast States

hot water heaters, home energy audits, hot water heater wraps, and sales of water saving kits. In addition, KLPD provides energy efficiency materials to its customers through bill stuffers. The District would like to initiate an efficient clothes washer program in conjunction with the Kennebunkport & Wells Water District.

Maine Air Power Incorporated: Maine Air Power provides equipment and auditing services for industries using compressed air in their manufacturing processes. Maine Air Power recommends a compressed air auditing service as an energy efficiency program.

Maine Community Action Association (MCAA): MCAA proposes a low income appliance replacement program capped at \$1,000 per household. It recommends that the existing interim Low Income Refrigerator Replacement program be expanded to include all inefficient electric appliances and compact fluorescent lamps.

Maine Dairy Farmers Association: The Commission received several letters from Maine dairy farmers requesting assistance with their electric bills and offering support for the agricultural efficiency program proposed by EnSave.

Maine Department of Environmental Protection (MDEP): The Maine DEP would like to submit a grant of \$50,000 to develop a public information product

addressing energy conservation. The goal of the program would be to broaden consumer understanding of the links between consumer behavior, energy use, and environmental impact. The public information product would take the form of a coupon book explaining energy and environmental linkages, and containing coupons for energy efficient products.

Maine Energy Education Program (MEEP): MEEP seeks continued funding for the Maine Energy Education Program. MEEP also proposes working jointly with SAMPLE<sup>2</sup> to develop a new educational component involving energy and indoor air quality issues.

Maine Public Service Company (MPS): MPS requests continuation of its Residential Audit Program, its Water Heater Wrap program, and its Energy Education Program.

Maine Solar Energy Association (MSEA): MSEA proposes subsidies to reduce the initial costs of solar energy systems. MSEA proposes a \$3 per watt incentive for grid-connected photovoltaic systems, \$20 per square foot of solar domestic hot water heaters, \$10 per square foot of building heating systems.

Maine State Housing Authority (MSHA): MSHA proposes using the energy conservation fund to supplement federally funded low income housing weatherization programs. Alternatively MSHA recommends expansion of the

Interim Low Income Refrigerator Replacement Program to include other electric appliances.

National Resource Management (NRM): NRM Proposes that the Commission develop a program for the small business sector that provides large incentives and low/no interest loans to encourage the purchase of efficient lighting and refrigeration equipment.

Natural Resources Council of Maine (NRCM): NRCM proposes adoption and implementation of energy efficiency standards for residential and commercial equipment/products. NRCM also requests that the Commission develop a State government procurement standard for energy efficient products. NRCM also urges the Commission to develop evaluation procedures that will allow the Commission to measure program progress.

Northeast Energy Efficiency Partnerships (NEEP): NEEP supports the recommendations of Maine's Office of Public Advocate. It recommends that the Commission maintain and build its regional partnerships, and it supports the Public Advocate's proposed Energy Code Support Program.

NYLE Special Products LLC (NYLE): NYLE proposes \$500 rebates per ton of air conditioning for energy efficient, ENERGY STAR rated cold-climate heat pumps to provide heating and cooling. The cost of the program is estimated

at \$350,000. NYLE also proposes a \$500 rebate for heat pump water heaters to be used in commercial applications such as restaurants, laundromats, and hair salons. The cost of this program is estimated at \$250,000 per year. Finally, NYLE proposes a heat pump water heater program for low-income households with incentives of up to \$1,000 per water heater to cover the total cost of installation. Program costs are estimated to be \$500,000 per year for the program.

Office of the Public Advocate: The Public Advocate recommends three residential programs: an efficient residential products program, a low income retrofit program, and a residential new construction program. Public Advocate also recommends four commercial programs: an equipment replacement program, a building operator certification program, a commercial new construction program, and a small commercial and industrial retrofit program. Finally, the Public Advocate recommends a statewide Energy Code Support Program to increase the number of buildings that meet and exceed the minimum code requirements.

Schulte Associates: Schulte Associates proposes the “Schools Air Monitoring Project for Learning and Energy Efficiency (SAMPLE<sup>2</sup>)”. SAMPLE<sup>2</sup> would provide installed air monitoring equipment and track the air quality data via the internet to monitor the indoor air quality and reduce the energy consumption in schools. SAMPLE 2 proposes monitoring three schools at a proposed cost of

\$56,000 to \$58,000 per school. Total cost of the project would be \$168,000 to \$174,000 per year.

TFH Architects (TFH): TFH offer support for the Maine Solar Energy Association proposed incentives for solar equipment.

Turner Building Services (TBS): TBS recommends providing schools with CO2 monitoring equipment to improve indoor air quality. Turner proposes providing the equipment to 20 school districts at a cost of \$1,200 per district. Training for how to use the equipment can be incorporated into the BOC II program.

#### **IV. DISCUSSION**

We recommend that the Commission implement the ten programs summarized in the table below for the 2004 program year. A more complete description of each program can be found in the attached document titled, "Maine's Energy Efficiency Program Plan."

Target Market	Program	2004 Budget	Annual MWh Savings	Benefit to Cost Ratio
RESIDENTIAL	Low Income efficient appliance	\$1,200,000	1,800	1.2
	ENERGY STAR® Products	\$1,300,000	3,000	1.4
	Water Heater Wrap			
COMMERCIAL	Small Business Efficiency Program	\$1,700,000	6,000	2.0
	Agricultural Program	\$200,000	690	2.0
	Commercial Industrial Program	\$1,300,000	12,000	15
INSTITUTIONAL	State Buildings Program	\$1,700,000	2,700	N/A
	High Performance Schools Program			N/A
	Existing Schools Program			
	Building Operator Certification	\$200,000		5.9
EDUCATIONAL	MEEP, MPS programs			

These programs reflect the comments of many of the parties and represent what we believe we can administer given our current staff levels and projected budgets. The recommendations offered by the parties that we were not able to adopt in some way are discussed below.

Codes and Standards: The MPUC does not have statutory authority to impose building energy codes or appliance efficiency standards. Since requesting input on programs, however, the Legislature has transferred responsibility for energy code enforcement from the Department of Economic and Community Development (DECD) to the Commission. (P.L. 2003, ch 20, Sec. RR-8-12. Because we have newfound responsibility for code enforcement, we have joined the NEEP “Northeast Regional Building Energy Codes Project” initiative to assist us in our enforcement and compliance activities. We are also working collaboratively with Environment Northeast to develop a common understanding of appliance efficiency standards prior to this year’s legislative session.

Incentives for Renewable Energy Systems: As written the Act does not allow the Commission to provide financial incentives for renewable energy resources. In addition according to our calculations the incentives proposed by the Maine Solar Energy Association would not pass the Modified Societal cost effectiveness test.

Existing Utility Programs:

We have not decided whether to allow utilities to continue to run water heater wrap programs as energy efficiency programs paid for through the Conservation Fund. We ask for an updated demonstration of cost effectiveness and for the utilities to agree to certain conditions before deciding whether to

extend these programs. Until such time as these issues are resolved, we recommend suspending the programs after December 31, 2002.

Kennebunk Power & Light District may continue its efficiency lighting program so long as it is made more compatible with our Residential ENERGY STAR<sup>®</sup> Products Program. In particular, it is important to ensure that incentive levels for products available through the two programs are compatible. Alternatively, the District could offer incentives for efficient products that are not available through our ENERGY STAR<sup>®</sup> Products Program. KP&LD may also continue to provide its customers with energy audits.

KP&LD's water heater load shedding program is a load management rather than an energy efficiency program. While we recognize the value of load shedding programs, we recommend against charging these costs to the Conservation Program Fund. If KP&LD wishes to continue offering this program, its costs should not be charged to the Fund.

We recommend that KP&LD co-promote energy efficient clothes washers with the local water district only so long as it does not offer financial incentives that are charged against the Conservation Fund. We have reviewed the cost-effectiveness of energy efficient clothes washer programs to determine whether it makes sense to include them in our statewide Maine Energy Efficiency Program Plan. Our conclusion to date has been that the cost effectiveness of such an

approach is not robust, and that it is heavily driven by assumptions regarding the penetration of electric hot water heat. ENERGY STAR<sup>®</sup> clothes washers will be promoted (without financial incentives) through our Residential ENERGY STAR<sup>®</sup> Products Program. We recommend any approach adopted by KP&LD should mirror what is offered in the statewide program.

We recommend Maine Public Service Company be allowed to continue its classroom educational program and its residential energy audits. Classroom educational activities will be available in the southern part of the State through the Maine Energy Education Partnership, but absent Maine Public offering its (similar) program, there would be no classroom education for northern Maine. Residential energy audits are a tool for utilities to deal with high bill complaints and may end up increasing the energy efficiency of the customer who receives the audit when it is accompanied by some concrete action.

Likewise, we recommend that EMEC be allowed to continue its energy monitoring of electric energy using devices at customer facilities to help them reduce their energy consumption.

Finally, we commend all utilities that currently provide their customers with information on how to reduce their energy consumption. We would like to work collaboratively with utilities to develop a consistent message and uniform materials in order to provide valuable information and promote the relevant

individually focused programs in the attached state wide “Maine Energy Efficiency Program Plan.”

Technology Specific Programs: We do not recommend moving forward with development of full-scale programs for the NYLE heat pump products, the SAMPLE<sup>2</sup> or the Turner Building Systems air quality monitoring program proposals at this time.

The NYLE heat pump programs may provide benefits to customers. We will explore whether the commercial equipment could be included in our Small Business Energy Efficiency Program. NYLE’s residential equipment proposals could also be cost effective in certain circumstances, but in most cases fuel switching may be a more cost effective option than heat pumps. We may explore a pilot project for the NYLE technology when we have greater staff resources and are able to accommodate it in our budget.

Indoor air quality is an important issue in the design of new energy efficient buildings and the retrofitting of inefficient buildings. It may in fact be that many of the indoor air quality problems seen in buildings today stem from earlier uninformed efforts at making the buildings more energy efficient. We have not chosen to pursue the air quality proposals because we believe that the responsibility for good building design rests with the building industry. While air quality may be related to how “tight” a building is, or how its HVAC equipment is

run, the primary responsibility for maintaining a healthy building environment lies elsewhere.

Grant Proposals: The Maine Department of Environmental Protection has indicated its interest in developing a grant proposal to promote energy efficient equipment and to educate consumers on the links between energy consumption and environmental quality. We encourage the DEP to develop and submit this proposal. The Act directs the Commission to collaborate with other State agencies to promote energy efficiency. If we can develop a project with DEP that appears to be cost effective and which the Department is willing to administer, we should pursue it.

Regional Activities: We have renewed our sponsorship in NEEP, and we are participating in two additional initiatives: the building code support initiative and the research and evaluation initiative. We are not participating in all of NEEP's initiatives because some of them simply don't apply to Maine consumers (e.g. residential HVAC is applicable where there is a high penetration of central air conditioning).

## **V. SUMMARY AND CONCLUSION**

With the few exceptions noted above, we believe that we have adopted most of the recommendations made by the parties to this proceeding. Next year will be the beginning of "full scale" efficiency program implementation in Maine.

The attached "Maine Energy Efficiency Program Plan" is a realistic first step towards a balanced, cost effective efficiency program for Maine. The document is the better for all of the comment and recommendations of the parties who took the time to comment.

We recommend Commission adoption of the attached plan.

Dated: September 11, 2003

Respectfully submitted,

Denis P. Bergeron, Director  
Energy Efficiency Program  
On Behalf of the Commission's  
Energy Efficiency Team